

REMARKS

Claim 2 is objected to for minor informality. It is respectfully submitted that the enclosed amendment obviates the alleged informality. Accordingly, it is respectfully requested that this objection be withdrawn.

Claim 6 is objected to as being an improper multiple dependent claim and has therefore not been examined on its merits. However, claim 6 itself is not a multiple dependent claim but merely depends on a multiple dependent claim. Accordingly, it is respectfully requested that claim 6 be examined. In this regard, in order to expedite prosecution, independent claims 1 and 2 have been amended to include the feature of claim 6. Accordingly, any rejection of claims 1 and 2 would render the next Office Action non-final.

Claims 4 and 7 stand rejected under 35 U.S.C. § 112, second paragraph. It is respectfully submitted that the enclosed amendment obviates the alleged indefiniteness. Accordingly, it is respectfully requested that this rejection be withdrawn.

Independent claim 1 stands rejected under 35 U.S.C. § 102 as being anticipated by Sipos et al. '041 ("Sipos"), and claim 2 stands rejected under 35 U.S.C. § 103 as being unpatentable over Deardorf '226 in view of Sipos. In both rejections, the Examiner relies on Sipos as allegedly disclosing the cooling step (*see, e.g.*, col. 4, lines 42-65 of Sipos). These rejections are respectfully traversed for the following reasons. Specifically, none of the cited prior art, alone or in combination, disclose or suggest the claimed combination which now includes the feature of claim 6 as discussed above and which the Examiner did not examine.

One of the features of the present invention is directed to processing in which a specific place of a laminates can be initially heat-pressed to provisionally fix the whole laminate at a temperature that is not lower than a softening point of a resin included in the prepreg. At the same time, the temperature can be kept low enough to allow the resin to be maintained in stage-B status. Accordingly, the press temperature should be kept between the softening temperature of the resin and the curing temperature of the resin. As described in the Background of the Invention section of the present application, conventional methods employ a high temperature to provisionally fix the laminate, whereby the resin included at the place to be provisionally fixed completely cures. Further, the resin flows out of the laminate at the time of the heat-pressing so that the amount of the resin included in the provisionally fixed portion becomes small and pores between the reinforcing materials are generated. According to the conventional method, after the provisional fixing the whole laminate is finally heat-pressed by pressing the entire surface of the laminate. As a result, at the time of the final heat-pressing, because the resin surrounding the pores is already cured, newly molten resin can not impregnate into the pores. Accordingly, the pores remain in the cured laminates and cause drawbacks such as absorption of the etching solution leading to corrosion of the circuit patterns, etc..

Indeed, Sipos is unrelated to the issues addressed by the present invention and therefore provides no motivation for modification to reach the claimed combination. Specifically, Sipos discloses that the release film functions to “prevent epoxy resin from adhering *to the stainless steel sheets* [and] ... to prevent adjacent printed circuit boards from being bound together as a result of epoxy resin being squeezed out at the perimeters of the boards” (emphasis added; col. 1, lines 30-35). Accordingly, Sipos merely discloses using release films as a “separating” layer between the prepreg sheet and the heating means to prevent direct contact therebetween. Sipos is

silent as to one of the objectives of the present invention, i.e., preventing resin from being pulled out of the prepreg sheet when the release sheet is peeled off.

To this end, Sipos discloses heating the laminate in a high temperature press mechanism (col. 4, lines 50-55) without regard to the aforementioned problem recognized by Applicants in which resin is pulled out of the prepreg sheet. Specifically, Sipos discloses a temperature of 170-200°C for 45-90 minutes, whereas an exemplary embodiment of the present invention describes a maximum temperature of approximately 100°C for approximately 3 seconds (*see, e.g.*, page 12, lines 19-21 of Applicants' specification).

Finally, with respect to claim 2, the Examiner alleges in paragraph 18 of the outstanding Office Action (beginning at the bottom of page 5) that "the transposition of process steps or the splitting of one step into two [does] ... not patentably distinguish the processes." The Examiner therefore alleges that modifying the single lamination step of the prior art into plural laminating steps would have been obvious. The basis for this allegation is that the resulting plural processes would be identical or equivalent in terms of function, manner and result. In the instant case, however, it is respectfully submitted that the plural processes would not be identical or equivalent in terms of function, manner and result for the reasons discussed above. Namely, according to the present invention, by performing the cooling process during the laminating rather than at the end (i.e., prior to the heat/pressing of the entire laminate unit), the present invention can prevent resin from being pulled out of the prepreg sheet by the mold-releasing sheet. In contrast, Sipos discloses only cooling the laminate unit as a whole rather than the individual prepreg sheet during the lamination.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that the cited prior art does not anticipate claims 1 and 2, nor any claim dependent thereon. The Examiner is directed to MPEP § 2143.03 under the section entitled "All Claim Limitations Must Be Taught or Suggested", which sets forth the applicable standard for establishing obviousness under § 103:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

In the instant case, the pending rejection does not "establish *prima facie* obviousness of [the] claimed invention" as recited in claims 1 and 2 because the proposed combination fails the "all the claim limitations" standard required under § 103.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as the independent claims are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 102/103 be withdrawn.

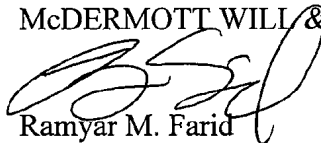
CONCLUSION

Having fully and completely responded to the Office Action, Applicant submits that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Ramyar M. Farid
Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 MEF:RMF:MaM
Facsimile: 202.756.8087
Date: July 27, 2007

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as our correspondence address.**